|  |
| --- |
|  |
| **POVERTY AND SOCIAL IMPACTS ANALYSIS** |
| Understanding the impact of tariffs and connection costs for the preparation of the National Electrification Plan, Myanmar |
|  |
|  |
|  |

|  |
| --- |
| The data presented here is based on qualitative research conducted by Enlightened Myanmar Research between February and June 2014. |

Contents

[List of Acronyms 3](#_Toc398048815)

[A. Executive Summary 4](#_Toc398048816)

[Quality of the service in rural areas 8](#_Toc398048817)

[Monthly bill comparison and increase percentage of tariff in different groups 12](#_Toc398048818)

[Different types of businesses surveyed (Yangon and Mandalay) 13](#_Toc398048819)

[Part I - Introduction 17](#_Toc398048820)

[1. Context 17](#_Toc398048821)

[2. Key Research Questions 17](#_Toc398048822)

[Table 1: Key research questions for the PSIA qualitative module 18](#_Toc398048823)

[Table 2: Changes in tariffs in effect by April 2014 19](#_Toc398048824)

[3. Methodology 20](#_Toc398048825)

[3.1 Quantitative Module Methodology **Error! Bookmark not defined.**](#_Toc398048826)

[3.2 Qualitative Module: Selection of Research Sites and Informants 20](#_Toc398048827)

[Table 3: Rural sites for qualitative analysis 20](#_Toc398048828)

[Table 4: Research sites in urban areas 21](#_Toc398048829)

[Table 5: Consultations conducted for institutional analysis 21](#_Toc398048830)

[Part II - Quantitative Analysis: Key finds **Error! Bookmark not defined.**](#_Toc398048831)

[1. Overall energy and electricity consumption patterns based on the IHLCA data (2009) **Error! Bookmark not defined.**](#_Toc398048832)

[2. Energy poverty and the impact of new tariffs simulations based on IHLCA 2009 data **Error! Bookmark not defined.**](#_Toc398048833)

[Part III - Qualitative Analysis 22](#_Toc398048834)

[1. Barriers to Access 22](#_Toc398048835)

[1.1 In Rural Areas 22](#_Toc398048836)

[Box 1: Self-Reliant Electrification 22](#_Toc398048837)

[Box 2: The cost of connection to the grid remains the key barrier in rural areas 24](#_Toc398048838)

[Table 6: Villages with access to electricity grid 24](#_Toc398048839)

[Box 3: Governance Challenges in Self-Organizing 25](#_Toc398048840)

[Table 7: Access to electricity services within villages 26](#_Toc398048841)

[Table 8: Cost of household connection for community-based initiatives and small electricity re-distribution businesses 27](#_Toc398048842)

[Box 5: Electricity Re-distributing Business in Rakhine 27](#_Toc398048843)

[Box 6: Distribution of solar panels 28](#_Toc398048844)

[1.2 In Urban Areas 29](#_Toc398048845)

[Table 9: Coverage of “government-provided electricity” within targeted wards in three cities Yangon, Mandalay and Hakha 29](#_Toc398048846)

[Figure 1: Limited access to the Government grid in YGN-3 30](#_Toc398048847)

[Table 10: Wards with access to electricity distributed by small-scale private providers in three cities 31](#_Toc398048848)

[Table 11: Cost of household/commercial connections in urban areas 32](#_Toc398048849)

[Box 7: Who supplies electricity for those without access to the Government grid in Yangon? 33](file:///C:\Users\WB332203\Documents\1.%20Myanmar\1.%20Electrification\0.%20Final%20Analysis_September%202014\Myanmar_NEP_Final%20PSIA%20Draft_Qualitative%20Analysis%209%20September%202014.docx#_Toc398048850)

[2. Uses of electricity and quality of the service 34](#_Toc398048851)

[2.1 Rural Areas 34](#_Toc398048852)

[Figure 2: Household perceptions of expenditure in energy and electricity 34](#_Toc398048853)

[Table 11: Uses of electricity by welfare group across rural areas 35](#_Toc398048854)

[Table 12: Rural SMEs monthly use of diesel 36](#_Toc398048855)

[Table 13: Quality of the service 37](#_Toc398048856)

[2.2 Urban Areas 37](#_Toc398048857)

[Figure 3: Household Perceptions electricity and energy expenditure as a proportion of total costs 38](#_Toc398048858)

[Table 14: Uses and feedback on quality of the service in urban areas 38](#_Toc398048859)

[3. Tariff Affordability: perceptions 40](#_Toc398048860)

[Figure 4: Electricity Bill for Village 2 produced by the electricity committee (charging 50 Kyats kWh) 40](#_Toc398048861)

[3.1 Rural Areas 40](#_Toc398048862)

[Table 15: Rates and additional charges (Government and Private Companies in Rural areas) 41](#_Toc398048863)

[Table 16: Rates charged by community-based schemes and small businesses re-distributing electricity 41](#_Toc398048864)

[Figure 5: Doing homework in the evenings in a Ayeyarwaddy Delta Village without access to electricity 42](#_Toc398048865)

[Box 9: Making do without electricity 42](#_Toc398048866)

[Table 17: Getting an overview of cost/quality across types of service providers in rural areas 43](#_Toc398048867)

[3.2 Urban Areas 43](#_Toc398048868)

[Figure 6: Bills for consumers in the industrial zones in Mandalay and Yangon 44](#_Toc398048869)

[Table 18: Monthly bill comparison and increase percentage of tariff in different wealth groups 44](#_Toc398048870)

[Table 19: Different types of businesses surveyed (Yangon and Mandalay) 45](#_Toc398048871)

[Table 20: Average weekly use of diesel (gallons) by SMEs 46](#_Toc398048872)

[Table 21: Summary of tariff increases impact and perceptions 47](#_Toc398048873)

[Part IV – Conclusion and Recommendations 48](#_Toc398048874)

# List of Acronyms

EI Earth Institute

FGD Focus Group Discussion

GDP Gross Domestic Product

KII Key Informant Interview

kWh Kilowatt hour

LIFT Livelihoods and Food Security Trust Fund

MoEP Ministry of Electric Power

NEP National Electrification Plan

PSIA Poverty and Social Impacts Analysis

QSEM Qualitative Socio-Economic Monitoring

TA Technical Assistance

WB World Bank

SMEs Small and Medium Enterprises

ESE Electrical Supply Enterprise

YESB Yangon Electrical Supply Board

CSO Civil Society Organization

UMFCCI Union of Myanmar Federation of Chambers of Commerce and Industries

DEP Department of Electric Power

SRE Self-Reliant Electrification

YGN Yangon

CHN Chin

MDY Mandalay

# Executive Summary

**Objective and key research questions**

**The Government of the Union of Myanmar is currently preparing the Myanmar National Electrification Plan (NEP). The NEP aims to electrify 100% of Myanmar’s households by 2030.** According to the Earth Institute’s (EI) geospatial planning results, this means connecting more than 7.2 million households over the next 16 years. Balancing financial sustainability with addressing consumers’ concerns about price increases, and in particular the need to protect poor and vulnerable consumers will be key for the implementation of the NEP.

**The development of the NEP supported by the World Bank (WB) through a series of capacity building and Technical Assistance (TA) activities includes a review of electricity tariffs and subsidy mechanisms.** The Poverty and Social Impacts Analysis (PSIA) is intended to support this process by providing information on: (i) the institutional context where the development and implementation of the NEP takes place; (ii) energy and electricity consumption patterns with a focus on energy poverty; (iii) perception of affordability of electricity connections and recurrent charges - with a particular focus on the new tariffs introduced in April 2014 and how these have affected different groups of consumers; and (iv) consumers’ perspectives on the quality of services and understanding of pricing. The PSIA used a mixed methods approach and included and quantitative and a qualitative module to collect information on the issues outlined above. [[1]](#footnote-1)

**The PSIA was implemented in a context where Government announcements of tariff increases in November 2013 met with significant opposition and protests on the part of citizens. Electricity tariffs for retail customers were adjusted in April 2014[[2]](#footnote-2).** The new tariff system introduced three tariff blocks for residential, small and medium-sized customers: (i) less than 100 kWh at 35 kyats; (ii) from 101 to 200 kWh at 40 kyats; and (iii) more than 201 kWh at 50 kyats. For industrial and large customers, there are six tariff blocks with tariffs range of 75-150 kyats/kWh. Effectively, residential, small and medium-sized customers will be cross-subsidized by industrial and large commercial customers since their new tariffs (35-50 kyats/kWh) are below the average cost of supply (Table 2 provides an overview of the increases in tariffs for different consumer groups).

**The PSIA drew on the results of a “deep-dive” into the 2009 IHLCA data focusing on access to electricity, reliability of supply and affordability.** A background paper (forthcoming) by Kozel and Kim is currently being finalized and will include an overview of the methodology.

**The qualitative analysis undertaken drew on the ongoing research program of the Livelihoods and Food Security Trust Fund (LIFT): Qualitative Socio-Economic Monitoring (QSEM) implemented for the World Bank by the Enlightened Myanmar Research (EMR) consultancy firm.** The selection of field sites took into account the importance of understanding the different contexts, conditions of access to electricity and perceptions of consumers in **rural and in urban areas.** The Focus Group Discussion (FGD), Key Informant Interviews (KIIs) and Household Questionnaires were field tested and adjusted based on the feedback from respondents. For rural areas, a sub-set of 13 the 56 QSEM villages were targeted to collect information from areas with different types of access to electricity in different Regions/States and “agro-ecological zones” (as outlined in Table 3). Overall a total of 114 FGDs and 378 KII were conducted across all research sites.[[3]](#footnote-3) All names of villages, wards, informants and FGD participants have been changed to ensure the anonymity of the respondents.

**Barriers to access and main uses of electricity**

**The IHLCA data indicates that overall, 28% of households in Myanmar were connected to the public grid in 2010 with marked differences between rural and urban areas: 77% of urban households were connected to the grid compared to only 10 percent of rural households**. An additional 15% reported they purchased electricity from private suppliers (9% of urban households, 18% of rural households). Another 5% indicated they used communal or had a private generator, and 7% reported using batteries for lighting. Overall, the IHLCA data indicates that there were substantial gaps in access to reliable electricity and that households, and communities and households developed innovative alternatives to secure access to electricity albeit without ensuring reliable supply.

**Overall, households with public connections were much more likely to live in urban areas and were wealthier than households with private or communal connections.** Access to electricity was highly correlated with income. Better off households were much more likely to use electricity (particularly the public grid) than poorer households.

**According to the IHLCA data, households connected to the public grid reported spending 1.4% of total expenditures on electricity, and the share of spending was fairly constant across the income distribution (for poor as well as rich households).** Households accessing electricity from private suppliers reported spending 2.2% of total consumer expenditures on electricity, which was also constant across the income distribution. Low spending is the result of modes tariffs and a generous lifeline tariff cut-off, coupled with low electricity consumption. A substantial number of (public electricity) households in Myanmar consume below the lifeline tariff (currently set at 100 KWh/month): in urban areas, 30% of households consumed 50 KWh/month or less, and 66% consumed 100 KWh/month or less. In rural areas, 53% of households consumed 50 KWh/month or less, and 88% consumed 100 KWh/month or less. Overall, current tariffs are moderate and electricity remains affordable to those who currently have access.

**Importantly not all households within electrified villages and wards were themselves connected to electricity services.** Electrification rates for urban wards/rural villages were substantially higher than electrification rates for individual households. According to the IHLCA, 41% of wards or villages were connected to the public grid, 13% reported communal electricity sources, and 50% had households that used electricity from a private supplier. Overall, 78% of urban wards and rural villages had some type of electricity supply available (viz. public, private, or communal). In 40% of electrified wards/villages, nearly all households were electrified. But private connection rates were highly variable in the remaining 60% of wards/villages.

**Very few households had electricity available 24/7. Surprisingly, there was no strong relationship between the reliability of the supply of electricity (measured in average hours available/day) and household income.** Households connected to the public grid reported an average availability of 12 hours/day, households connected to private suppliers reported an average availability of 10-11 hours/day

**IHLCA tabulations, augmented by some additional simulations, do not suggest that electricity affordability is currently a concern for households currently connected to electricity services in Myanmar.** It is important to understand this finding in a context where better off households are currently much more likely than poorer households to be connected to the grid. In addition, this finding was not reflected in the qualitative analysis and warrants additional study. Qualitative analysis further indicated that in rural areas, electricity committees and private companies do charge rates significantly above those set by MoEP. Further analysis will be particularly relevant as the NEP plans a steep increase in the number of households to be covered by electricity services and an outreach to poor and marginalized households currently not connected.

*Barriers to Access in rural and urban areas*

**The “Self-Reliant Electrification Approach” (SRE) currently in place through which communities raise their own funds to connect to the Government’s electricity grid provides no financial support to communities. Access to electricity in rural areas is limited, therefore, by the current coverage of the grid but also by the fact that villages must cover the costs of the connection from the main “transmission” line to the village itself.** All three villages with access to the government electricity were located immediately beside the main road/transmission lines (or beside a sub-station). However, of the remaining nine villages without access to the government grid five were similarly located within 2 to 3 miles from the main roads and the transmission lines.

**Limited technical support is provided by the township departments of the electricity companies responsible for overseeing the SRE and there is little regulation of the role of electricity committees that oversee SRE at village level.** Composition and selection of electricity committee members, their functions and roles, segregation of duties, procedures for financial management and procurement, disclosure of information, community mobilization and planning procedures as well as the rates for be charged are left to the discretion of the committees themselves. This creates a number of organizational and governance challenges and often results in electricity tariffs significantly above those set by government. Given the limited external support available for SRE, social cohesion, social capital and quality of leadership at village level play a key role in determining the village’s chances to access the Government’s electricity service.

**Within villages connected to the grid (or with access to electricity through community initiatives), a significant proportion of the population (middle and lower income households) remain without access.** The fees associated with connecting the village to the grid are unaffordable for these households. In addition, the research team noted that poor households are excluded right from the planning stages – as village leaders/elites assume their inability to pay and do not invite them for discussions. While there were no instances noted (in the areas visited) of particular groups being denied access to electricity based on other social factors (ethnicity, political or religious affiliation for example) poorer villages and households are systematically being excluded due to their inability to pay for the connection.[[4]](#footnote-4) No instances of cross-subsidization were observed (where the village itself put in place a mechanism to facilitate access to poorer households). In five of the 9 villages with a functioning electricity scheme, poor households did not use electricity at all, relying on batteries, candles and paraffin lamps.[[5]](#footnote-5)

**Barriers to access (inability to connect to the service) were less relevant in the main urban centers but significant for smaller cities (Hakha) and for informal settlers in poorer wards (Yangon and Mandalay).** Overall access was not the key concern in the major urban centers of Yangon and Mandalay and issues of quality of service and affordability were more frequently highlighted by respondents across all wards visited.. There were, however, noteworthy issues of access particularly by informal settlers in Yangon (namely in the poorer ward visited, YGN-3)[[6]](#footnote-6). While the costs of the connection were indicated as a barrier to access by a small minority the most commonly mentioned reason for using these “better than nothing at all” services in Yangon was the inability to secure the necessary documentation (including household and land registration as well as approval of the application by the ward leader) to apply for a connection.

**Informal connections to small-scale local providers of electricity (using diesel generators) were observed across all cities and were particularly important in Hakha.** This was noted given the limitations of the coverage by government-provided electricity services (only a few hours every other day). In Mandalay, all neighborhoods visited had connections to electricity provided by similar small-scale operators. This was conveyed as a “back-up” option given the widespread black-outs experienced until recently in the city. In Yangon the research team found a different scenario where only the poorest groups (informal settlers) relied on the services of these small local private providers given their inability to access the grid as highlighted above.

**The cost of connections for households and industrial/commercial consumers varied across sites but did not constitute a barrier for the majority of respondents in urban areas as it did in rural areas.** However, as noted above, the poorest and marginalized households in low income wards could not afford the connection fee and used informal electricity providers instead. In addition, interviews conducted with households from the wealthiest quintiles and businesses in Industrial zones in Mandalay and Yangon indicated that a significant portion of the connection cost had been shouldered by the households and/or by businesses themselves at the time of establishment.

*Uses and quality of the service*

**The qualitative analysis indicated that uses of electricity were very consistent across research sites in rural areas. Household use was primarily for lighting and TV across all sites visited.** For lower middle income households (among those with an electricity connection) lighting was often the only use found. Diesel was the primary source of energy for livelihood activities for the vast majority of households and small businesses interviewed. Overall, the cost of diesel (and fluctuations in cost) were a significant constraint to their profitability and there was high demand among rural Small and Medium Enterprises (SMEs) for grid-based electricity services.

**While current usage of electricity was limited, households across all rural research sites (with and without access to the Government grid) highlighted the importance of an electricity connection to *“be linked up to the outside world”*** particularly through a TV. There was a sense in village with no electricity connections that they were left behind in terms of the “modernization” process (particularly where better-off villages in the vicinity were connected to the grid). Furthermore, there was high demand for more reliable electricity services so children could study at night and electricity could be used for livelihood activities (in the areas visited this consisted of pottery making in the evenings, lighting in small village shops and more generally agricultural activities given the very high perceived cost of diesel).

**Agricultural tasks for large/medium/small farmer were systematically carried out with diesel generators**. These were owned for large/medium farmers and rented out for small farmers. Better off households, in villages with reliable electricity supply, used electricity for water pumping and limited irrigation. In the areas surveyed, fishermen mainly relied on diesel generators for productive activities (i.e for lighting to sort fish in the evenings).

### Quality of the service in rural areas

| **Types of Sources** | **Villages** | **Regularity** | **Capacity** |
| --- | --- | --- | --- |
| Grid Connection (Government or Private Provider) | Village 1 (Magway)- Grid | Regular access- 24 hours (black-outs very rare) | Good capacity (regular household uses –lighting and TV as well as water pumps) |
| Village-3 (Chin) - Hydro | One day out of three | Good enough for lighting and TV |
| Village-2 (Shan-N) Grid | Regular access- 24 hours (black-outs very rare) | Good capacity (regular household uses –lighting and TV as well as water pumps) |
| Village-5 (Shan-E) - Hydro | Regular access- 24 hours (black-outs very rare) | Good capacity (regular household uses –lighting and TV as well as water pumps) |
| Community Initiatives | Village-4 (Chin) - Hydro | 2 hours daily | Lighting and TV only |
| Village-7 (MDY) – Generator | 2 hours daily | Limited capacity lighting only |
| Household re-distribution/small businesses using diesel generators | Village-6 (Magway) -Village Monastery generator | 2 hours daily | Lighting and TV only |
| Village-8 (Rakhine)- Household redistribution | 2 hours daily | Lighting and TV only |
| Village-9 (Rakhine) - Household re-distribution | 2 hours daily | Lighting and TV only |

**Unlike in rural areas, uses at household level in urban areas varied more markedly across wards/income groups and cities.** Urban households with generally better access to reliable electricity used significantly more appliances. Beyond lighting and TV, electricity was commonly used to run refrigerators, stoves, kettles and rice-cookers. Air-conditioning was an important use among higher income households and found exceptionally only in middle-income households. The use of electricity for cooking was observed in better-off wards but was much less prevalent in middle-income neighborhoods and non-existent in the poorer wards.Issues of quality of service were stressed in poorer wards more strongly (across all three cities) both in terms of the availability, reliability of the supply and speed/cost of repairs.

**With the exception of Hakha, which has significant limitations in the actual availability of service, respondents in Yangon were the most critical regarding the quality of the service** (particularly in the middle-income ward visited). In Mandalay the overall perception across sites was that privatization had improved the quality of service and customer relations. There were some variations, within cities in terms of quality of service with poorer wards highlighting more power fluctuations and difficulties in getting repairs done. Interestingly, better off households reported good service for repairs with no informal charges. These were more frequently mentioned in middle income wards. Poorer households tended not to call the service provider (as this would take too long) but instead to call upon private electricians (sometimes employed by the electricity companies but doing these small repair jobs “on the side” for additional income).

Uses of electricity and perception of quality in urban areas

|  |  |  |
| --- | --- | --- |
| **Location** | Uses | Perception of Quality |
| **Poorer Wards** | | |
| CHN- 3 | Mostly lighting with firewood used for cooking and heating | Limited availability - 3 hours/day during 5 days a week |
| MDY- 3 | Lighting and TV | Fluctuation in capacity throughout the day, issues noted with maintenance and charges covered by the community (frequent weather related damage). |
| YGN- 3 | Lighting and TV with charcoal used for cooking. A very limited number of respondents (2 of 25) had small appliances (kettle, rice-cooker) | 24 hours supply but limitations in terms of capacity (water pumping only possible during the day for example). For repairs, households contacted electricians privately and paid them directly. |
| **Middle Income Wards** | | |
| CHN- 2 | Lighting and TV with very limited appliance use. Charcoal used for cooking and heating | Limited availability - 3 hours/day during 5 days a week |
| MDY- 2 | Lighting, TV, limited use of appliance (fans rather than air-conditioning). Hot plates used for cooking | Limited capacity for 1 or 3 hours during cooking time in the evening but overall good supply and few blackouts. Improvements in quality of service also noted with privatization. Some informal charges reportedly collected for repairs |
| YGN- 2 | Lighting, TV, basic appliances including stoves, kettles, rice cookers, refrigerators and simple washing machines. Electricity used for cooking with more limited use of charcoal for the households interviewed | Limited capacity during cooking hours (10 am to 12 pm). Repairs are relatively quick but informal charges collected |
| **Better-off Wards** | | |
| CHN- 1 | Lighting, TV and limited appliance use. Cooking and heating done with charcoal. Use of private generators to complement limited government services | Limited availability - 3 hours/day during 5 days a week. |
| MDY- 1 | Lighting, TV appliances air-conditioning and cooking | Some issues with capacity and occasional black-outs (weather related damage). Noted improvements in service after privatization (particularly for maintenance and customer service). Repairs were conducted quickly and no informal charges were reported although “tips” were provided |
| YGN- 1 | Lighting (including security lighting/garden lighting), full range of appliances including air-conditioning and cooking | 24 hours and good capacity. Repairs were conducted quickly and no informal charges collected although “tips” were provided |

**Affordability of the new tariffs: perceptions**

*In rural areas*

**In rural areas, there was an overall lack of knowledge on the part of households about the electricity tariffs charged by Government and the increase taking effect in April[[7]](#footnote-7) 2014.** Across all 13 villages visited, only a very limited number respondents had heard about the tariff increases. These were: (i) the members of the Electricity Committees at village level and; (ii) occasionally small business owners who had heard the announcements on TV.

**Standard government rates were applied only in two of the four villages where electricity services were provided either by government or a private company** (per kWh/hour). In the other two sites, tariffs collected were much higher than government rates at 200 Kyats/kWh and 50 Kyats/kWh and were set by the electricity committee. As noted earlier, the functioning of the electricity committee is largely unregulated and while these committees are responsible for the maintenance of the village’s system there is no guidance provided on what amounts to charge for the service. In addition, the level of detail provided in the bill does not allow households to fully understand the tariffs, additional meter rental charges or other maintenance charges that may be added. Overall, where social capital was high and there was trust between the electricity committee and the villagers the amounts charged were not questioned. Governance challenges did emerge as highlighted in the case of Village 3 (Box 3).

Rates and additional charges (Government and Private Companies in Rural areas)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Service Provider | Villages | Tariffs | Additional Charges | Monthly charges (kyats) |
| Government-provided Electricity | Village 1 (Magway) | Government rates for both domestic use and businesses | Regular monthly charges: 500 kyats for meter maintenance, 300 kyats for village electricity committee, and 300-500 kyats for “units lost” between village main meter and individual household meters.  Occasional charges: 1,000 kyats for maintenance when larger repairs were required | 2,000 to 17,500 |
| Village-3 (Chin) | Government rates for both domestic use and businesses (small hydro) | Regular monthly charges: 200 kyats contribution for collecting/paying bills at township office | 3,000 to 8,000 |
| Village-2 (Shan) | 50 kyats/KWh (the rate set by the village electricity committee) | Regular monthly charges: 500 kyats for meter maintenance | 3,000 to 25,000 |
| Private Company  (Hydro) | Village 5 (Shan) | 200 kyats/KWh | None | 4,000 to 14,000 |

Rates charged by community-based schemes and small businesses re-distributing electricity

|  |  |  |
| --- | --- | --- |
| Service Provider | Villages and type of service | Rates charged |
| Community Initiatives | Village-4 (Chin) - hydro | 16 baskets of maze per household as an annual contribution (very poor quality of service noted) |
| Village-7 (MDY) – diesel generator | 1500 Kyat/month for lighting and 1000 kyats/month for TV |
| Households redistribution of electricity (diesel generators) | Village-6 (Magway) | 1000 Kyat/month for lighting and 1500 kyat/month for TV |
| Village-8 (Rakhine) | 3000 kyats/month for Lighting and 1500 kyats/month for TV |
| Village-9 (Rakhine) | 3000 kyats/month for lighting and 6000 kyats for TV |

**When assessing affordability of the rates currently practiced in rural areas it is important to consider the perspectives of three groups:**

1. **Overall, for those with access to either Government/Private Company Services or more informal (community schemes or small businesses), payments were considered affordable.** Consumption was overall low (primarily for lighting and TV as noted above) and respondents in rural areas were: (i) not concerned about the upcoming tariff increases; (ii) were not planning to further reduce electricity consumption. In terms of coping strategies, landless/land poor households did, however, occasionally resort to late payments (no more than 1 month for grid connection or additional few days for community initiatives/household re-distribution) or to borrowing from neighbors for monthly electricity payments (for a short period of time and without incurring any interest – the rationale being that they would be able to reciprocate the favor at a later date). Value for money considerations were frequently brought up by respondents when discussing affordability of tariffs, with grid-based services usually considered reasonably priced by those with access.
2. **Participants in FGD, Key Informants (in villages 4, 7, 8 and 9) without access to reliable electricity supply also referred to the fact that the service received was “expensive” given the poor quality.** They expressed a keen interest in access the Government grid (should the connection to the village be affordable) as it would result in “savings” (lower rates for a better service than what they current have access to).
3. **Importantly, the poorer groups in the rural areas visited (as defined by the villagers themselves) considered they could not afford to pay electricity charges even for the minimum lighting in the evenings.** These groups were not currently connected to the grid (in villages 1,2 and 6)or to community initiatives/small businesses providing a few hours of electricity in the evenings(for villages 4,5,7,8 and 9).The discussion about affordability of rates currently being charged in rural areas (across the different types service providers – formal or informal), needs to be understood in a context where: (i) the poorest villages in the study sample do not have access to the government grid or electricity provided by private companies; (ii) the most vulnerable households within the communities do not have to electricity (and use candles, paraffin lamps for lighting).

**Currently this group considers the connection costs to the home and the lowest rates charged by small-scale suppliers (typically 1500 kyats/month for lighting in the evening) unaffordable.** As the NEP rolls-out and grid connections are extended subsidizing access by these groups in terms of connections to village and home as well as subsidizing tariffs to allow access to electricity will be key.

*In urban areas*

**Analysis in urban areas was conducted in April and May 2014 once new tariffs were already in place and the first bill with the increases had been paid by households.** Compared to rural areas, there was a generally good understanding of the new tariffs charged and greater clarity in terms of the different charges that make up the electricity bill.

### Monthly bill comparison and increase percentage of tariff in different groups

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Wealth Quintile | Average Usage (units kWh) | Previous monthly bill (average) | Current monthly bill (average) | Estimated increase % |
| Well-off | 1,443 | 50,500 | 70,00 | 38 |
| Medium | 282 | 9,800 | 11,500 | 17 |
| Poorer | 138 | 4,900 | 5,000 | marginal changes |

**Given the limited supply of electricity in Hakha (number of hours/day), the city was in an exceptional situation in that the increase in rates were not considered relevant for all respondents across wards (including the poorest).** There were high expectations regarding the expansion of Government electricity services. A common concern for better off/middle income households and small businesses in Hakha was the high cost of fuel for diesel generators. There was significant hope that improved access to electricity would eventually result in savings. As in rural areas, the use of solar panels as an alternative to diesel (for lighting) was frequently observed for households that were able to afford the upfront investment. Overall rates charged were considered affordable although respondents resented having to pay “maintenance fees” for meters 500 kyats/meter/month (in fact meter rental fees) as they reported receiving “no maintenance services”.

**The situation was significantly different in Yangon and Mandalay where particular segments of participants in the study reported being “very affected” by the increase, namely middle-income households and some categories of SMEs.** As noted earlier it is important to highlight that the findings reported here focus on households and businesses perceptions of impact. In the case of middle-income wards, where feedback on tariffs was strongly negative, there were, in fact, no negative coping strategies reported. Respondents in this case linked their dissatisfaction with the tariff increases with the lack of improvements in the quality of services.

*Feedback from poor and marginalized households*

**Pre-existing difficulties to pay were noted for the most vulnerable households interviewed, although this segment of interviewees did not see their electricity tariff increase.** Households considered vulnerable/marginalized within the poorer wards themselves reported challenges with making monthly electricity payments (both for grid connection and for small scale distributors). Overall, the main coping strategies noted were delays in payment and borrowing from neighbors. Borrowing was done without interest charged but with the idea that the favor will be reciprocated if needed, indicating significantly high levels of social cohesion/social capital in these wards. Payments were never more than a month late for grid connection and a few days late for small-scale providers.

**As noted earlier, in a small number of cases (among on the households interviewed) the cost of the connection to the household was a barrier for the poor in urban areas.** This was true in wards where the government service does not yet provide full coverage and connection to some blocks in the ward may require a significant investment. Respondents in this category in Mandalay[[8]](#footnote-8) use the services of informal providers instead. They indicated that given the opportunity to connect they would prefer to pay government tariffs considered overall affordable and as better value for money if the cost of connection could be subsidized.

*Respondents in middle class wards*

**Respondents in middle class ward had mostly moderate overall increases but had strong negative feedback on the additional cost particularly in Yangon.** These participants in the study highlighted that increases in tariffs were not accompanied by improvements in the quality of the service. Given the level of consumption/types of uses, this segment of respondents reported it would be difficult for them to further reduce electricity consumption. The most frequently mentioned savings item was to reduce air-conditioning use[[9]](#footnote-9) and switching off lights during the day. No significant delays in bill payment, instance of borrowing money or reduction of other types of expenditure were however, reported.

**Significant increases were noted for the better-off households (particularly in Yangon) and savings were planned to cope with new rates.** The items households indicated they would most likely cut were: (i) lighting in garden/security lights; (ii) air-conditioning; (iii) lighting during the day/unused rooms. While there was negative feedback on the increases, this was less strong than in middle-class areas with an overall sense that electricity supply was of good quality.

*Small and Medium Enterprises (SMEs) in Yangon and Mandalay*

**The study covered three groups of SMEs in Yangon and Mandalay, defined in terms of their electricity consumption**. Feedback on the tariff increases and coping strategies adopted varied depending on the new tariff band in which they now found themselves in.

### Different types of businesses surveyed (Yangon and Mandalay)

|  |  |  |  |
| --- | --- | --- | --- |
| Cities | Number of SMEs by consumption (Units kWh) | | |
| 1-500 | 501-10,000 | 10,001-20,000 |
| Yangon | 8 | 17 | 0 |
| Mandalay | 13 | 10 | 2 |
| Total | 21 | 27 | 2 |

**Very small, family run businesses and business requiring unskilled labor reported not being affected by changes in tariffs.** These made up a significant proportion of the businesses surveyed and included small-scale food production and packaging companies and mechanics. Overall the rates were considered affordable and no particular negative coping strategies were observed among this group.

**Medium-sized businesses (in the second and third group) were the most affected among those surveyed[[10]](#footnote-10).** The second group of businesses includes mold making, printing and purified water companies, now required to pay 25 additional kyats per unit (or 30% increase in relation to the previous tariff structure). These businesses consider themselves hard hit by the increases particularly as they have to shoulder the additional electricity costs together with diesel costs. Generators are still needed to address gaps in electricity supply (fluctuations in capacity and brief black-outs). The third group of businesses was found only in the Mandalay industrial zone surveyed. These were two smelting businesses (iron rods and construction materials), which fell under the second tariff block with an additional 50 kyats to be paid per unit (i.e two-thirds increase in their bill compared to the previous tariff). Using generators for these businesses is extremely expensive and they rely heavily on the grid connection having invested significantly in setting up the necessary infrastructure in the Industrial Zone.

**The most common coping strategy reported was to increase prices for the consumer when this was possible** (in some instances pre-existing contract commitments meant that businesses incurred losses). Medium businesses in the second group coped by laying off some staff, reducing production and no longer holding stocks (i.e producing only when they had a specific order). Larger businesses in the third group reported that they had some time to prepare (around three months) and find cheaper suppliers and re-negotiate prices and in spite of a higher increase where in a comparatively better situation.

**However, even among the second group of businesses (most affected) feedback focused on improvement in quality of service rather than in reduction of the tariffs**. The main recommendation made by all the three groups was to reduce power fluctuations, increase voltage capacity and ensure a 24-hour steady supply. With these conditions met, business owners would be able to drastically reduce their expenditures with diesel, which were considered more burdensome than electricity prices. Overall 85% of businesses interviewed regularly use generators (100% of those in Chin).

**Conclusions and Recommendations**

*In rural areas*

**The SRE approach currently in place allocates no funding to subsidize feasibility studies and technical assistance or hardware at community level meaning that currently only the better off villages and better off households within those villages are be able to access government electricity services[[11]](#footnote-11)**. The limited guidance provided on the community mobilization and planning process for SRE seems to have resulted in a systematic exclusion of poor households within communities with access to government electricity. The research team did not find instance of the participation on the part of these households in planning or discussions on cost and access. Community planning is led by the electricity committee whose members are nominated among formal and traditional leaders. Information is not widely shared with the community and no instances of community-level subsidizing of access by poor households were observed across research sites. No instances were observed of community members being excluded on the basis of ethnic or religious identity. However, this area of enquiry may warrant further analysis in a subsequent phase of the PSIA requiring different sampling/site selection than that currently used by QSEM.

**Similarly, the lack of regulation of electricity committee functions (including rate setting) resulted in some instances in the application of tariffs well above those set by MoEP** (50 kyats/kWh and 200 kyats kWh). Consumers of government services in rural areas also pay additional maintenance charges to do with the upkeep of the connections and collection of payments. In addition, it is important to note that rural households have a limited understanding of the bills (which are frequently not itemized). Payments tend to be made regularly where there is strong social capital and trust in village leadership and the electricity committee. No negative feedback was received by the research team on these higher rates charged.

**Given the profile of households with access to government electricity services in rural areas (overall the better off groups in the sites covered) and the limited uses of electricity, no negative feedback was received from current users on the updated tariffs** (where these were practiced). The majority of these households use electricity for lighting and TV in the evenings and would not be affected by tariff increases. Overall, government services are considered good value for money when compared to informal providers or community-based initiatives using small-scale hydro or diesel generators.

**Subsidizing the cost of connections to the villages and to individual households within these villages would be an important element of the NEP roll-out to ensure more equitable access to the service in rural areas.** Beyond the cost of connection to the village, once the latter is established, the additional costs of connecting individual households acted as a second barrier for low income households.

**Further regulation of the functioning of the electricity committees and the provision of technical assistance including a focus on community participation, good governance and social accountability would be an equally important element.** Beyond the regulation of tariff setting in rural areas, the functioning of the electricity committees and their oversight would benefit from strengthening under NEP (if these committees are expected to play an ongoing role in rural areas for the implementation of interim mini-grid solutions). Challenges with governance and instances of lack of transparency in financial management were observed by the research team. Overall, the quality of leadership and social cohesion at village level currently play the determining role in the absence of external regulation and support. The same SRE process can lead to very different outcomes as noted by the research team fully depending on the local context (i.e currently regulations are not adding much additional value in terms of quality of the process).

**Across all sites visited [[12]](#footnote-12) a significant proportion of poor and marginalized households, not connected to the grid at the time of the study, could not afford the cost of the basic services of informal providers** (Kyats 1000 to 1500/month for lighting in the evenings). Extending access to electricity to this group under NEP would require not only subsidizing the cost of overall connections, connections to the households but also the introduction of further subsidized tariffs. Additional analysis to be carried out in the new Living Standards Survey (2014) will be key to understanding energy consumption among this group as an input to the design appropriate life-line tariffs.

*In urban areas*

As noted above, the cost of access was not the key concern in urban areas, where the option of SRE is of course not viable. **There was high demand for electricity services in Hakha and an overall sense that access to electricity using the new tariffs would significantly reduce households’ expenditure on energy**. Currently, the purchase of fuel is considered a heavy burden on households and small businesses in Hakha.

**For the urban centers of Yangon and Mandalay the cost of household connections in poorer wards where the government service does not yet have full coverage was a significant barrier to access for low income households**. In additional informal settlers in Yangon (1,000 households in YGN 3) could not access the grid as they were unable to obtain the necessary documentation to apply for the connection. There was strong demand for the service among these household who considered government service better value for money when compared to informal providers. A small number of households interviewed in Yangon (4 of 25 in the poorer ward, YGN 3) also indicated that they could not afford the payment of regular charges and therefore relied on informal service providers opting for daily payments.

**Overall there was strong negative feedback among middle-income households and small businesses in Yangon and Mandalay regarding the new tariffs.** Households in urban areas where well informed about the new rates and had a good understanding of the different charges in their electricity bill. For middle-income households feedback was related to the lack of improvements noted in service rather than with overall inability to pay. Respondents indicated they would implement some saving measures but no negative coping strategies or delays with payments were observed. Adverse impacts were noted among SMEs in both of these urban areas with medium businesses laying off staff and reducing production. Importantly, lack of quality of the electricity service and the need to rely on diesel generators with associated costs was the main complaint of this particular group.

**As with rural areas, subsidizing connections to the home in poor wards would seem important for a more equitable NEP roll-out.** Regularizing and simplifying requirements for applications/connections in informal settlements would equally be key. As with the rural poor and marginalized households a closer analysis of the energy consumption among this group would be important for the design of life-line tariffs. With current tariffs already being unaffordable there is a risk that this vulnerable group will be left out of the electrification process.

**Improvement in quality, reliability and repair services will be essential particularly if further increases in rates are expected to be put in place.** Communication with consumers, feedback and grievance redress mechanisms are virtually non-existent and information tends to flow based on personal connections.

1. The quantitative analysis based on 2009 Living Standards Survey (IHLCA) will be presented in a forthcoming paper by Kozel and Kim [↑](#footnote-ref-1)
2. Previously tariffs had been adjusted in January 2012 following significant devaluation of the Myanmar kyat [↑](#footnote-ref-2)
3. Village and ward names were removed for the analysis/write to guarantee respondents’ anonymity particularly relevant for case studies to be developed on barriers to access to electricity, governance issues of Electricity Committee, informal charge collected. [↑](#footnote-ref-3)
4. In this regard it is important to note that qualitative analysis was undertaken in 13 villages only and that further work will be conducted under the PSIA Phase II to understand possible social dimensions of exclusion within villages with greater depth. [↑](#footnote-ref-4)
5. Please refer to Section 2.1 outlining that for villages with connections to the grid household with access to the service are usually those better off. [↑](#footnote-ref-5)
6. Informal settlers in Yangon (YGN 3) are not included in wards records and therefore not officially “counted” in data on access to electricity (please see Table 9) [↑](#footnote-ref-6)
7. It is important to note that field work in rural areas was conducted in March 2014. This was following the announcement of the increase in rates but before the tariffs were reflected in the new bills. [↑](#footnote-ref-7)
8. As in Chin respondents saw little value in getting a connection to the grid given the limited supply [↑](#footnote-ref-8)
9. For a minority of households in the middle-income wards covered [↑](#footnote-ref-9)
10. It’s important to note that the analysis did not cover individual discussions with large-scale companies although the Myanmar Chamber of Commerce and the Management Committee of Industrial Zones in Mandalay and Yangon were consulted on the overall quality of the electricity supply and on their perspectives regarding tariff increases. [↑](#footnote-ref-10)
11. Among villages within reach of the grid. [↑](#footnote-ref-11)
12. With the exception of the villages in Shan state which were exceptionally well off [↑](#footnote-ref-12)